13.0 NON-WATER QUALITY IMPACTS

Sections 304(b) and 306 of the Clean Water Act require EPA to consider non-water quality environmental impacts (including energy requirements) associated with effluent limitations guidelines and standards. To comply with these requirements, EPA considered the potential impact of the MP&M final rule on energy consumption, air emissions, and solid waste generation. Section 9.0 discusses the final rule technology options.

While it is difficult to balance environmental impacts across all media and energy use, the Agency has determined that the benefits associated with compliance with the limitations and standards justify the multimedia impacts identified in this section (see Chapters 12 through 16 of the Economic, Environmental, and Benefits Analysis of the Final Metal Products and Machinery Rule (EEBA) (EPA-821-B-03-002) for a discussion on the environmental benefits associated with this final regulation).

Section 13.1 discusses the energy requirements for implementing wastewater treatment technologies at MP&M facilities. Section 13.2 presents the impact of the technologies on air emissions, and Section 13.3 discusses the impact on wastewater treatment sludge and waste oil generation. Section 13.4 presents the reference used in this section.

13.1 Energy Requirements

EPA estimates that compliance with this rule will result in a net increase in energy consumption at MP&M facilities. Table 13-1 presents estimates of energy usage for the selected technology option.

Table 13-1

Energy Usage for the Selected Technology Option

Selected Option	Incremental Energy Required[a] (kiloWatt hrs/yr)
Basic Technology with Water Conservation and Pollution Prevention • Option 6: End-of-pipe chemical emulsion breaking and gravity separation; plus in-process flow control and pollution prevention technologies (Oily Wastes).	350,676

Source: EPA Costs & Loadings Model.

[a]The amount of additional energy required (from baseline) if the technology option is implemented, summed for all regulated facilities.

This annual incremental net energy increase for the MP&M final rule is minimal (< 0.001 percent) when compared with the total electricity used by the entire United States in 1997 (3,123 billion kiloWatt hours (KWH)) (1). Additionally, EPA expects that this small increase in energy usage will not result in any increase of air emissions impacts from the electric power generation facilities providing the additional energy.

13.2 Air Emissions Impacts

The in-process and end-of-pipe technologies included in the technology options for this rule do not generate significant air emissions. The additional air emissions generated by the technology options will not hinder facilities' ability to comply with EPA's national emission standards for hazardous air pollutants (NESHAPs).

EPA is developing NESHAPs under Section 112 of the Clean Air Act (CAA) to address air emissions of the hazardous air pollutants (HAPs) listed in Section 112(b) of the CAA. Below is a list of current and upcoming NESHAPs that affect MP&M sites (see EPA's Air Toxics Web site, http://www.epa.gov/ttn/atw/, for more information and updates):

- Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks - Proposed December 16, 1993 and promulgated on January 25, 1995;
- Halogenated Solvent Cleaning - Proposed November 29, 1993 and promulgated on December 2, 1994;
- Aerospace Manufacturing - Proposed June 6, 1994 and promulgated on September 1, 1995;
- Shipbuilding and Ship Repair (Surface Coating) - Proposed December 6, 1994 and promulgated on December 15, 1995;
- Large Appliances (Surface Coating) - Proposed December 22, 2000 and promulgated on July 23, 2002;
- Metal Furniture (Surface Coating) - Proposed April 24, 2002;
- Metal Can (Surface Coating) - Signed November 26, 2002;
- Automobile and Light-Duty Truck Manufacturing (Surface Coating) - Signed November 26, 2002; and
- Miscellaneous Metal Parts and Products (Surface Coating) - Proposed August 13, 2002.

These NESHAPs define the maximum achievable control technology (MACT) for emissions of HAPs. Like effluent guidelines, MACT standards are technology-based. The CAA specifies criteria for determining MACT for new and existing sources.

Halogenated HAP solvents (e.g., methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and chloroform) used for cleaning

in the MP&M industry can be a source of hazardous air emissions. EPA believes the final MP&M rule will not affect the use of solvents containing halogenated hazardous air pollutants in the MP&M industry. This rule neither requires nor discourages the use of aqueous cleaners in lieu of halogenated HAP solvents.

Additionally, because the final rule would not allow any less stringent control of VOCs or organic HAPs than is currently in place at MP&M facilities, EPA does not predict any net increase in air emissions from volatilization or organic pollutants due to the final rule. As such, EPA expects no adverse air impacts to occur as a result of the final rule.

13.3 Solid Waste Generation

Solid waste generated at the regulated MP&M sites consists of waste oil removed in wastewater treatment. EPA estimates that compliance with this final rule will result in an increase in MP&M waste oil generation.

Based on the Agency's detailed questionnaire, EPA estimates that MP&M facilities covered by this final rule generated 13.5 million gallons of waste oil in 1996. Table 13-2 presents the amount of additional waste oil expected to be generated as a result of implementing the technology option.

Table 13-2

Waste Oil Removed by the Selected Option

Selected Option	Incremental Waste Oil Removed[a] (million gal/yr)
Basic Technology with Water Conservation and Pollution Prevention • Option 6: End-of-pipe chemical emulsion breaking and gravity separation; plus in-process flow control and pollution prevention technologies (Oily Wastes).	2.4

Source: MP&M Costs & Loadings Model.

[a]The amount of additional oil removed (from baseline) if the technology option is implemented, summed for all regulated facilities.

Removing oil from MP&M wastewater prior to discharge to surface waters results in an increase in waste oil generation from baseline to the final rule option (Option 6). The increase in waste oil generation reflects better removal of oil from the wastewater, and does not reflect an increase in overall oil use at MP&M facilities.

MP&M facilities usually either recycle waste oil on or off site, or contract for off-site disposal of the waste oil as either a hazardous or nonhazardous waste. For the purpose of compliance cost estimation, EPA assumed that all sites contracted for off-site disposal of waste oil; however, EPA expects that some of the waste oil can be recycled either on or off site.

13.4 References

1. The Energy Information Administration. Electric Power Annual 1998 Volume 1, Table A1, 1998. http://www.eia.doe.gov/.

14.0 LONG-TERM AVERAGES AND EFFLUENT LIMITATIONS AND STANDARDS

This section presents the MP&M effluent guidelines for each regulatory level of control required by the Clean Water Act (CWA) for direct and indirect dischargers, and presents the technology basis for the limitations and standards. Section 2.0 provides more details on the different regulatory levels of control. Direct dischargers are sites that discharge wastewater to a surface water. Indirect dischargers are sites that discharge wastewater to a publicly owned treatment works (POTW).

EPA is only promulgating limitations and standards for direct dischargers (existing and new) for one of the subcategories in the January 2001 proposal: Oily Wastes. These limitations and standards are codified in 40 CFR 438, Subpart A. The final limitations are concentration-based limitations with an allowable pH range.

EPA decided not to establish limitations for existing and new direct dischargers in seven subcategories listed in the January 2001 proposal (General Metals, Metal Finishing Job Shops, Printed Wiring Board, Non-Chromium Anodizing, Steel Forming and Finishing, Railroad Line Maintenance, and Shipbuilding Dry Dock). EPA also decided not to establish standards for new and existing indirect dischargers (PSES and PSNS) for all eight subcategories listed in the January 2001 proposal (including the Oily Wastes Subcategory in the final MP&M rule).

Sections 14.1 through 14.8 discuss EPA's rationale for the selected technology options and summarize the effluent guidelines for each of the regulatory levels of control for each of the subcategories listed in the January 2001 proposal. Section 10.0 contains detailed information on those facilities whose data EPA used to calculate the BPT limitations, and presents the statistical methodology for developing numerical limitations. Section 9.0 describes in detail all of the MP&M technology options evaluated for the final rule, and Sections 11.0 and 12.0 discuss estimated compliance costs and pollutant loadings and removals, respectively, for these technology options. All supporting economic and financial analyses can be found in the Economic, Environmental, and Benefits Analysis of the Final Metal Products & Machinery Rule (EEBA) (EPA-821-B-03-002). Cost-effectiveness analyses can be found in the EEBA and Section 26.0 of the rulemaking record, DCN 37900.

EPA is promulgating performance-based limitations and standards to control direct discharges; these limitation and standards do not require the use of any particular pollution prevention or wastewater treatment technology. Rather, a facility may use any combination of pollution prevention and wastewater treatment technology to comply with the limitations. Direct dischargers must also comply with NPDES regulations (40 CFR 122).

14.1 General Metals Subcategory

EPA is not revising or establishing any limitations or standards for facilities that would have been subject to this subcategory. Such facilities will continue to be regulated by the

General Pretreatment Standards (Part 403), local limits, permit limits, and Parts 413 and/or 433, as applicable.

14.2 Metal Finishing Job Shops Subcategory

EPA is not revising any limitations or standards for facilities that would have been subject to this subcategory. Such facilities will continue to be regulated by the General Pretreatment Standards (Part 403), local limits, permit limits, and Parts 413 and/or 433, as applicable.

14.3 Non-Chromium Anodizing Subcategory

EPA is not revising limitations or standards for any facilities that would have been subject to this subcategory. Such facilities will continue to be regulated by the General Pretreatment Standards (Part 403), local limits, permit limits, and Parts 413 and/or 433, as applicable.

14.4 Printed Wiring Board Subcategory

EPA is not revising any limitations or standards for facilities that would have been subject to this subcategory. Such facilities will continue to be regulated by the General Pretreatment Standards (Part 403), local limits, permit limits, and Parts 413 and/or 433, as applicable.

14.5 Steel Forming and Finishing Subcategory

EPA is not revising limitations or standards for any facilities that would have been subject to this subcategory. Such facilities will continue to be regulated by the General Pretreatment Standards (Part 403), local limits, permit limits, and Iron and Steel effluent limitations guidelines (Part 420) as applicable.

14.6 Oily Wastes Subcategory

EPA is promulgating limitations and standards for existing and new direct dischargers in the Oily Wastes Subcategory based on the proposed Option 6 technology (see Section 9.0). EPA is not promulgating pretreatment standards for existing or new indirect dischargers in this subcategory.

14.6.1 Best Practicable Control Technology (BPT)

As discussed in Section 9.7.1, EPA is establishing BPT pH limitations and daily maximum limitations for two pollutants, oil and grease as hexane extractable material (oil and grease (as HEM)) and total suspended solids (TSS), for direct dischargers in the Oily Wastes Subcategory based on the proposed technology option (Option 6). Option 6 technology includes

the following: (1) in-process flow control and pollution prevention, and (2) oil/water separation by chemical emulsion breaking and skimming (see Section 9.0 for additional details on the Option 6 technology).

In its analyses, EPA estimated that facilities will monitor once per month for oil and grease (as HEM) and TSS. EPA expects that 12 data points for each pollutant per year will yield a meaningful basis for establishing compliance with the promulgated limitations through long-term trends and short-term variability in oil and grease (as HEM) and TSS pollutant discharge loading patterns.

Although EPA is not changing the technology basis from that proposed, EPA is revising all of the proposed Oily Wastes Subcategory BPT limitations. This is due to incorporation of additional data and revisions to the data sets used to calculate the promulgated limitations (see 67 FR 38754).

Table 14-1

BPT Effluent Limitations for the Oily Wastes Subcategory

Regulated Parameter	Maximum Daily mg/L (ppm)
Total Suspended Solids (TSS)	62
Oil and Grease (as HEM)	46
pH	a

[a]Discharges must remain within the pH range 6 to 9.

These BPT limitations regulate process wastewater discharges from “oily operations” at existing or new direct dischargers engaged in manufacturing, rebuilding, or maintenance of metal parts, products, or machines used in any of the 16 industrial sectors listed in Section 1.1 and 40 CFR 438.1. EPA has defined “oily operation” in Section V.A of the preamble to the final rule, 40 CFR 438.2(f), and Appendix B to Part 438.

Wastewater discharges from other subcategories listed in the January 2001 proposal will continue to be regulated by existing categorical regulations (e.g., 40 CFR 413, 433, 420), General Pretreatment Standards (40 CFR 403), local limits, or permit limits. When a facility segregates "oily operations" process wastewaters from other process wastewaters, the NPDES permit writer will use the limitations and standards in the final rule for those "oily operations" process wastewaters (40 CFR 438). When a facility commingles "oily operations" process wastewaters with other process wastewaters already covered by other effluent limitations guidelines or with process wastewaters from metal-bearing operations (as defined in 438.2), the entire commingled stream is not regulated by the final rule. This provision must be examined for each point source discharge at a given facility and is codified at 438.1(b).

14.6.2 Best Conventional Pollutant Control Technology (BCT)

EPA is promulgating effluent limitations for conventional parameters (e.g., pH, TSS, oil and grease) equivalent to BPT for this subcategory because it identified no technologies that can achieve greater removals of conventional pollutants than the selected BPT technology basis that also pass the BCT cost test (see Section 9.7.2).

14.6.3 Best Available Technology Economically Achievable (BAT)

EPA proposed to control toxic and nonconventional pollutants by using BAT limitations based on Option 6 technology. As described in Section 9.7.3, EPA is not promulgating BAT limitations for specific pollutant parameters. EPA will achieve control of toxic organics and other priority and nonconventional pollutant discharges in Oily Wastes Subcategory process wastewaters through use of the oil and grease (as HEM) limitation.

14.6.4 New Source Performance Standards (NSPS)

EPA is promulgating NSPS that would control pH and the same conventional pollutants controlled at the BPT and BCT levels (see Section 9.7.4).

14.6.5 Pretreatment Standards for Existing Sources (PSES)

EPA proposed to establish PSES for existing indirect dischargers in the Oily Wastes Subcategory based on the Option 6 technology (i.e., the same technology basis that is being promulgated for BPT/BCT/NSPS for this subcategory) with a “low-flow” exclusion of 2 million gallons per year (MGY) to reduce economic impacts on small businesses and administrative burden for control authorities. EPA is not promulgating PSES for existing indirect dischargers in the Oily Wastes Subcategory (see Section 9.7.5). These facilities remain subject to the General Pretreatment Standards (40 CFR 403) and local limits, as applicable.

14.6.6 Pretreatment Standards for New Sources (PSNS)

EPA proposed to establish PSNS for indirect dischargers in the Oily Wastes Subcategory based on the Option 6 technology (i.e., the same technology basis that is being promulgated for NSPS for this subcategory) with a “low-flow” exclusion of 2 MGY to reduce economic impacts on small businesses and reduce administrative burden to POTWs. EPA rejected Option 6 technology as the basis for PSNS in the Oily Wastes Subcategory. EPA has selected “no further regulation” for new Oily Wastes Subcategory indirect dischargers and is not revising PSNS for new Oily Wastes Subcategory indirect dischargers (see Section 9.7.6). These facilities remain subject to the General Pretreatment Standards (40 CFR 403) and local limits, as applicable.

14.7 Railroad Line Maintenance Subcategory

EPA is not establishing limitations or standards for any facilities that would have been subject to this subcategory. Permit writers and control authorities will establish controls using best professional judgment (BPJ) to regulate wastewater discharges from these facilities.

14.8 Shipbuilding Dry Dock Subcategory

EPA is not establishing limitations or standards for any facilities that would have been subject to this subcategory. Permit writers and control authorities will establish controls using BPJ to regulate wastewater discharges from these facilities.

15.0 IMPLEMENTATION

This section provides guidance to permit writers and the regulated community for implementing the MP&M effluent limitations guidelines and standards. Section 15.1 describes the MP&M effluent guidelines' applicability, Section 15.2 summarizes compliance dates, Section 15.3 presents guidance on developing limits, and Section 15.4 summarizes monitoring requirements.

15.1 Applicability of the MP&M Effluent Guidelines

The MP&M Point Source Category regulates oily operation process wastewater discharges to surface waters from existing or new industrial facilities (including facilities owned and operated by federal, state, or local governments) engaged in manufacturing, rebuilding, or maintenance of metal parts, products, or machines for use in any of the 16 MP&M industrial sectors. Please note the underlined language in the previous sentence. A facility may be subject to the MP&M effluent guidelines even if it is not in one of the MP&M industrial sectors. For example, EPA considers a facility performing machining as part of the "Bus & Truck" industrial sector if it maintains metal parts for truck trailers. Process wastewater means wastewater as defined at 40 CFR 122 and 401, and includes wastewater from air pollution control devices (see 40 CFR 438.2(g)). EPA notes that the MP&M effluent guidelines only regulate process wastewaters from wet air pollution control for organic constituents (see 40 CFR 438.2(f)). Oily operations are listed at 40 CFR 438.2(g) and defined in Appendix B to Part 438 (see also Section 4.0 of this document).

Manufacturing is the series of unit operations necessary to produce metal products and is generally performed in a production environment. Rebuilding/maintenance is the series of unit operations necessary to disassemble used metal products into components, replace the components or subassemblies or restore them to original function, and reassemble the metal product. Rebuilding and maintenance operations are intended to keep metal products in operating condition and can be performed in either a production or a nonproduction environment. The 16 industrial sectors are described in further detail in the following subsection. Additionally, some facilities are excluded by definition from the MP&M effluent guidelines (see Section 15.1.3).

EPA collected data on a wide variety of facilities engaged in manufacturing, rebuilding, or maintenance of metal parts, products, or machines for use in the 16 MP&M industrial sectors (see Section 3.0). The range of manufacturing, rebuilding, or maintenance operations involved the following types of metal parts, products, or machines: (1) parts, products, or machines composed of metal or metal alloys, and/or (2) parts, products, or machines with metal surfaces. In particular, EPA notes that metal parts or products can have a nonmetal substrate with a metal surface. For example, a plastic part with a metal surface is considered a "metal part" under MP&M effluent guidelines when it is manufactured, rebuilt, or maintained for use in one of the 16 industrial sectors. Oily operation process wastewaters on this metal part would be subject to the MP&M effluent guidelines provided there are no exclusions from the

guidelines as described in the applicability section of the rule. Another specific example of a metal part is a laminate composed of a metal surface and nonmetal substrate. In this particular case, the laminate manufacturing process involves pressing a fiberglass web between two sheets of copper foil for a part in electronic equipment. If a facility performs oily operations on this laminate (a "metal part" because it has a metal surface), then any resulting process wastewater would be subject to the MP&M effluent guidelines provided there are no exclusions from the guidelines as described in the applicability section of the rule. EPA notes that lead crystal is not a metal part or product as it does not have a metal surface.

15.1.1 MP&M Industrial Sectors

The MP&M Point Source Category encompasses manufacturing, rebuilding, or maintenance of metal parts, products, or machines for use in the following industrial sectors:

- Aerospace;
- Aircraft;
- Bus and Truck;
- Electronic Equipment;
- Hardware;
- Household Equipment;
- Instruments;
- Mobile Industrial Equipment;
- Motor Vehicle;
- Office Machines;
- Ordnance;
- Precious Metals and Jewelry;
- Railroad;
- Ships and Boats;
- Stationary Industrial Equipment; and
- Miscellaneous Metal Products.

The MP&M sectors manufacture, maintain, and rebuild metal products under more than 200 different Standard Industrial Classification (SIC) codes. Typical products in the MP&M industrial sectors are listed in Appendix A to 40 CFR 438 and Appendix A of this document includes a list of example SIC codes and North American Industrial Classification System (NAICS) codes that may further clarify the description of the above industrial sectors.

The final rule also covers direct discharges of wastewater from MP&M operations related to maintenance and repair of metal products, parts, and machinery at military installations (i.e., federal facilities) as well as facilities owned or operated by state or local governments. For example, the rule covers wastewater generated from the maintenance and repair of aircraft, cars, trucks, buses, tanks (or other armor personnel carriers), and industrial equipment – these operations are commonly performed at military installations and state or local government maintenance facilities.

The MP&M effluent guidelines do not apply to maintenance or repair of metal parts, products, or machines that takes place only as ancillary activities at facilities not included in the 16 MP&M industrial sectors. EPA estimates that these ancillary repair and maintenance activities would typically discharge *de minimis* quantities of process wastewater. For example, wastewater discharges from repair of metal parts at oil and gas extraction facilities are not subject to the final rule. The Agency has concluded that permit writers will establish limits using best professional judgment (BPJ) to regulate wastewater discharges from ancillary waste streams for direct dischargers (see 66 FR 433). EPA has not received any information during the rulemaking that would contradict this conclusion.

Alternatively, EPA is including oily operation process wastewater discharges from activities related to maintaining or repairing aircraft or other related (metal) equipment (e.g., baggage-handling vehicles) at airports when those oily operation process wastewaters are not already covered by another effluent guidelines regulation (see Section 15.1.3).

15.1.2 Regulated Subcategory in the MP&M Effluent Guidelines

EPA evaluated the following subcategories for the MP&M final rule: General Metals, Metal Finishing Job Shops, Non-Chromium Anodizing, Printed Wiring Board, Steel Forming and Finishing, Oily Wastes, Railroad Line Maintenance, and Shipbuilding Dry Dock. See Section 6.0 for a further discussion on the subcategorization structure EPA evaluated for the final rule. As discussed in Section 9.0, the MP&M effluent guidelines apply only to facilities in the Oily Wastes Subcategory (40 CFR 438, Subpart A). The Oily Wastes Subcategory applies to all of the 16 industrial sectors listed in the previous section. Section 6.0 further defines the Oily Wastes Subcategory.

15.1.3 Facilities Not Subject to the MP&M Effluent Guidelines

Certain facilities and process wastewaters are not subject to the MP&M guidelines. These are listed at 40 CFR 438.1 (b) through (e) and are more fully described below.

Overlap With Metal-Bearing Operations and Existing Effluent Limitations Guidelines and Standards

MP&M effluent guidelines do not apply to process wastewaters from metal-bearing operations (see Section 4.0) or process wastewaters that are subject to the limitations and standards of other effluent limitations guidelines (e.g., Metal Finishing (40 CFR 433) or Iron and Steel Manufacturing (40 CFR 420)). EPA also established effluent guidelines for 11 other industries that may perform unit operations or process parts that are sometimes found at MP&M sites. These effluent guidelines are:

- Electroplating (40 CFR 413)[1];
- Nonferrous Metals Manufacturing (40 CFR 421);
- Ferroalloy Manufacturing (40 CFR 424);
- Battery Manufacturing (40 CFR 461);
- Metal Molding & Casting (40 CFR 464);
- Coil Coating (40 CFR 465);
- Porcelain Enameling (40 CFR 466);
- Aluminum Forming (40 CFR 467);
- Copper Forming (40 CFR 468);
- Electrical & Electronic Components (40 CFR 469); and
- Nonferrous Metals Forming & Metal Powders (40 CFR 471).

Under the proposed rule, there was overlapping coverage between Parts 413, 433, and the proposed Part 438. See Table 15-1, which clarifies the coverage of Parts 413 and 433 and new Part 438 with respect to the subcategories evaluated for regulation in the final rule.

In general, when unit operations and their associated wastewater discharges are already covered by an existing effluent guideline, they will remain regulated under that effluent guideline. Additionally, these wastewater discharges will continue to be regulated by General Pretreatment Standards (40 CFR 403), local limits, and permit limits, as applicable. The limitations and standards in the Oily Wastes Subcategory (40 CFR 438, Subpart A) apply to process wastewater generated by "oily operations" that are discharged directly to surface waters and are not otherwise covered by other effluent limitations guidelines and standards.

The MP&M effluent guidelines also do not apply to process wastewaters from oily operations commingled with process wastewaters already covered by other effluent limitations guidelines or with process wastewaters from metal-bearing operations. When a facility segregates oily operation process wastewaters from other process wastewaters, the NPDES permit writer will use the MP&M limitations and standards for those oily operation process wastewaters and use the applicable limitations and standards for their other discharges. When a facility commingles oily operation process wastewaters with other process wastewaters already covered by other effluent limitations guidelines or with process wastewaters from metal-bearing operations, the entire commingled stream is not regulated by the MP&M limitations and standards. This provision must be examined for each point source discharge at a given facility and is codified at 40 CFR 438.1(b).

Table 15-1 summarizes the coverage of industrial operations by each MP&M subcategory evaluated for the final rule.

[1]Part 413 applies only to indirect discharging job shops and independent printed circuit board manufacturers in operation prior to August 31, 1982.

Table 15-1

Clarification of Coverage by MP&M Subcategory Evaluated for the Final Rule

Subcategory Evaluated for the Final Rule	Continue to Cover Under 40 CFR 413[a] (Electroplating)	Continue to Cover Under 40 CFR 433 (Metal Finishing)	Cover Under 40 CFR 438 (Metal Products & Machinery)
General Metals (Including Continuous Electroplaters)[b]	Existing indirect dischargers covered by Part 413.	New and existing direct and indirect dischargers covered by Part 433.	None
Metal Finishing Job Shops	Existing indirect dischargers covered by Part 413.	New and existing direct and indirect dischargers covered by Part 433.	None
Non-Chromium Anodizing	Existing indirect dischargers covered by Part 413.	New and existing direct and indirect dischargers covered by Part 433.	None
Printed Wiring Board (Printed Circuit Board)	Existing indirect dischargers covered by Part 413.	New and existing direct and indirect dischargers covered by Part 433.	None
Steel Forming and Finishing[c]	NA	NA	None
Oily Wastes	NA	NA	All new and existing direct dischargers under this subcategory (See 438.10).
Railroad Line Maintenance	NA	NA	None
Shipbuilding Dry Dock	NA	NA	None

NA - Not applicable.

[a]Part 413 applies only to indirect discharging job shops and independent printed circuit board manufacturers in operation prior to August 31, 1982.

[b]Part 413 specifically excludes continuous electroplaters. Instead they are covered by Part 433.

[c]These facilities will continue to be subject to Part 420.

Applicability of MP&M Effluent Guidelines to Washing Operations

Wastewater discharges resulting from the washing of cars, aircraft, or other vehicles, when performed only for aesthetic or cosmetic purposes, are not subject to the MP&M effluent guidelines. Direct discharges resulting from the washing of cars, aircraft, or other vehicles, when performed as a preparatory step prior to one or more successive manufacturing, rebuilding, or maintenance operations, are subject to the MP&M effluent guidelines. This provision is codified at 40 CFR 438.1(c). For example, if an auto repair facility washes a vehicle in order to perform painting (an oily operation covered by the final rule), that wash water from the vehicle is considered an oily operation process wastewater. Aesthetic or cosmetic wastewater discharges commingled with directly discharged MP&M oily operation process wastewaters must be accounted for as nonregulated wastewaters using the building-block approach to develop facility-specific permits limits (see Section 15.3 for additional information on using the building-block approach).

Applicability of MP&M Effluent Guidelines to Railroad Line Maintenance Facilities and Railroad Overhaul or Heavy Maintenance Facilities

Wastewater discharges from railroad line maintenance facilities are not subject to the MP&M effluent guidelines. Wastewater discharges from railroad overhaul or heavy maintenance facilities may be covered by the MP&M effluent guidelines (Subpart A), the Metal Finishing Point Source Category (40 CFR 433), or by other effluent limitations guidelines, as applicable. This provision is codified at 40 CFR 438.1(d).

Facilities engaged in the manufacture, overhaul, or heavy maintenance of railroad engines, cars, car-wheel trucks, or similar parts or machines ("railroad overhaul or heavy maintenance facilities") typically perform different unit operations than railroad line maintenance facilities. Railroad line maintenance facilities perform routine cleaning and light maintenance on railroad engines, cars, car-wheel trucks, or similar parts or machines, and discharge wastewater exclusively from oily operations. These facilities only perform one or more of the following operations: assembly/disassembly, floor cleaning, maintenance machining (wheel truing), touch-up painting, and washing.

Railroad overhaul or heavy maintenance facilities are engaged in the manufacture, overhaul, or heavy maintenance of railroad engines, cars, car-wheel trucks, or similar parts or machines. These facilities typically perform one or more of the same operations as railroad line maintenance facilities and one or more of the following operations: abrasive blasting, alkaline cleaning, aqueous degreasing, corrosion preventive coating, electrical discharge machining, grinding, heat treating, impact deformation, painting, plasma arc machining, polishing, pressure deformation, soldering/brazing, stripping (paint), testing, thermal cutting, and welding.

Permit writers will need to examine operations at each railroad overhaul or heavy maintenance facility to determine whether they fall under the MP&M effluent guidelines, the Metal Finishing Point Source Category (40 CFR 433), or other effluent limitations guidelines.

For example, process wastewaters from metal-bearing operations (e.g., stripping (paint)) at railroad overhaul or heavy maintenance facilities are not subject to the MP&M effluent guidelines (i.e., stripping (paint) is a metal-bearing operation).

Other Wastewaters Not Subject to the MP&M Effluent Guidelines

Other wastewaters and facilities not subject to the MP&M effluent guidelines are codified at 40 CFR 438.1(e) and are described below.

The MP&M effluent guidelines do not apply to nonprocess wastewater. Nonprocess wastewater means sanitary wastewater, noncontact cooling water, water from laundering, and noncontact stormwater. Nonprocess wastewater also includes wastewater discharges from nonindustrial sources such as residential housing, schools, churches, recreational parks, shopping centers as well as wastewater discharges from gas stations, utility plants, and hospitals. EPA considers stormwater that is commingled with MP&M oily operation process wastewater (i.e., contact stormwater) prior to treatment or discharge subject to the MP&M effluent guidelines. Sanitary wastewater, noncontact cooling water, water from laundering, and noncontact stormwater commingled with directly discharged MP&M oily operation process wastewaters must be accounted for as nonregulated wastewaters using the building-block approach to develop facility specific permits limits (see Section 15.3).

The MP&M effluent guidelines also do not apply to wastewater discharges from oily operations introduced into a publicly owned treatment works (POTW) or a federally owned and operated treatment works treating domestic sewage (TWTDS), as defined at 40 CFR 122.2. These wastewater discharges will be subject to General Pretreatment Standards (40 CFR 403), local limits, permit limits, and other effluent guidelines, as applicable.

The MP&M effluent guidelines also do not apply to wastewater discharges in or on dry docks and similar structures, such as graving docks, building ways, marine railways, lift barges at shipbuilding facilities (or shipyards), and ships that are afloat. This provision is codified at 40 CFR 438(e)(5) and applies only to process wastewater generated and discharged from oily operations and metal-bearing operations inside and outside ships (including bilge water and dry dock stormwater) that occur in or on dry docks or similar structures.

In addition to these dry dock wastewaters, three other types of water streams are in or on dry docks and similar structures: flooding water, dry dock ballast water, and stormwater. Flooding water enters and exits the dry dock or similar structure prior to performing any MP&M operations. For example, in a graving dock, the gates are opened, allowing flooding water in and ships to float inside the chamber. Then the flooding water is drained, leaving the ship's exterior exposed so shipyard employees can repair and maintain the ship's hull. Dry dock ballast water serves a similar purpose. It is used to lower (or sink) a floating dry dock so that a ship can float over it. Then the dry dock ballast water is pumped out, raising the dry dock with the ship on top. Flooding water and dry dock ballast water are not directly associated with MP&M operations. Finally, because these structures are located outdoors and are exposed to the elements,

stormwater may fall in or on the dry dock or similar structures. All three of these wastewaters (i.e., flooding water, dry dock ballast water, and stormwater) are excluded from the scope of the MP&M effluent guidelines.

However, the Agency is including direct discharges of process wastewater from oily operations that is generated at other shipyard locations ("on-shore" operations) in the MP&M regulation rule (assuming the other exclusions of Parts 438.1 and 438.10 do not apply). EPA included wastewaters from these oily "on-shore" shipbuilding operations (e.g., machining, floor cleaning, solvent degreasing, dye penetrant testing, and grinding) in the Oily Wastes Subcategory. Such oily operations are typically found in a machine shop in the shipyard. Wastewaters subject to the Shipbuilding Dry Dock exclusion commingled with directly discharged MP&M oily operation process wastewaters must be accounted for as nonregulated wastewaters using the building-block approach to develop facility specific permits limits (see Section 15.3).

Also, EPA is not including wastewater generated onboard ships when they are afloat (i.e., not in dry docks or similar structures). For U.S. military ships, EPA is in the process of establishing standards under the Uniform National Discharge Standards (UNDS) pursuant to Section 312(n) of the Clean Water Act (CWA) (see 64 F.R. 25125; May 10, 1999) to regulate discharges of wastewater generated onboard these ships when they are in U.S. waters and are afloat (e.g., at a shipyard's dock).

For reasons discussed in the preamble to the final rule and Section 9.0, wastewater generated by facilities primarily performing drum reconditioning and cleaning to prepare metal drums for resale, reuse, or disposal are also not subject to the MP&M effluent guidelines. This provision only covers facilities in the Industrial Container and Drum Cleaning (ICDC) industry. This industry is within the 1987 Standard Industrial Classification (SIC) Code 7699 (Repair Shops and Related Services, Not Elsewhere Classified). All other facilities in this SIC code are included in the "Miscellaneous Metal Products" MP&M industrial sector (see Appendix A and Section 15.1.1). The ICDC industry includes facilities that clean and recondition metal and plastic drums and intermediate bulk containers (IBCs) for resale, reuse, or disposal. ICDC facilities can be further classified as facilities that either burn open-head steel drums or wash plastic or tight-head (i.e., bung-type) steel drums and IBCs. Most ICDC facilities purchase used drums or containers that they clean and recondition for resale.

EPA estimates that most ICDC facilities discharge ICDC wastewater and that all or almost all of these facilities discharge indirectly to a POTW. EPA has not identified any facilities that discharge directly to surface waters. EPA also estimates that a portion of the industry achieves zero discharge by hauling the wastewater to a centralized waste treatment facility, or disposing of the wastewater by land application or evaporation. Alternatively, some ICDC facilities achieve zero discharge by recycling or reusing 100 percent of its wastewater (see Section 22.1, DCN 17933 and Section 24.1, DCN 17853 of the rulemaking record).

For reasons discussed in the preamble to the final rule and Section 9.0, the following wastewater discharges are also not subject to the MP&M effluent guidelines:

- Process wastewater generated by maintenance and repair activities at gasoline service stations (SIC Code 5541), passenger car rental facilities, or utility trailer and recreational vehicle rental facilities (SIC Code 7514 or 7519); and

- Wastewater from gravure cylinder and metallic platemaking conducted within or for printing and publishing facilities (SIC Code 2796).

Figure 15-1 shows the MP&M permitting process flow chart.

15.2 Compliance Dates

New and reissued federal and state NPDES permits to MP&M direct dischargers must include the limitations and standards in the MP&M effluent guidelines. The permits must require immediate compliance with such limitations. If the permitting authority wishes to provide additional time for compliance, the permit authority should consider issuance of an enforcement order that provides for a schedule for compliance.

New sources must comply with the new source performance standards (NSPS) of the MP&M rule at the time they commence discharging MP&M process wastewater. The Agency considers a discharger a new source if its construction commences 30 days after the publication date of the final rule in the Federal Register.

15.3 Limits Development

To develop limits for process wastewaters covered by the MP&M effluent guidelines, a permit writer must first determine if the process wastewater is subject to the regulation by determining the type of discharge (i.e., direct) and examining the unit operation(s) that generate the process wastewater (see Section 15.1 and Section 6.0). This requires careful consideration of the applicability criteria in Sections 438.1 and 438.10 of the final rule. After the permit writer determines that a process wastewater is subject to the MP&M effluent guidelines, the next step is to determine the applicable limitations and standards. Table 15-2 presents the concentration-based MP&M effluent guidelines for new and existing direct dischargers in the Oily Wastes Subcategory (40 CFR 438, Subpart A). The permit writer must then apply these limitations and standards to the MP&M process wastewater directly discharged from the facility.

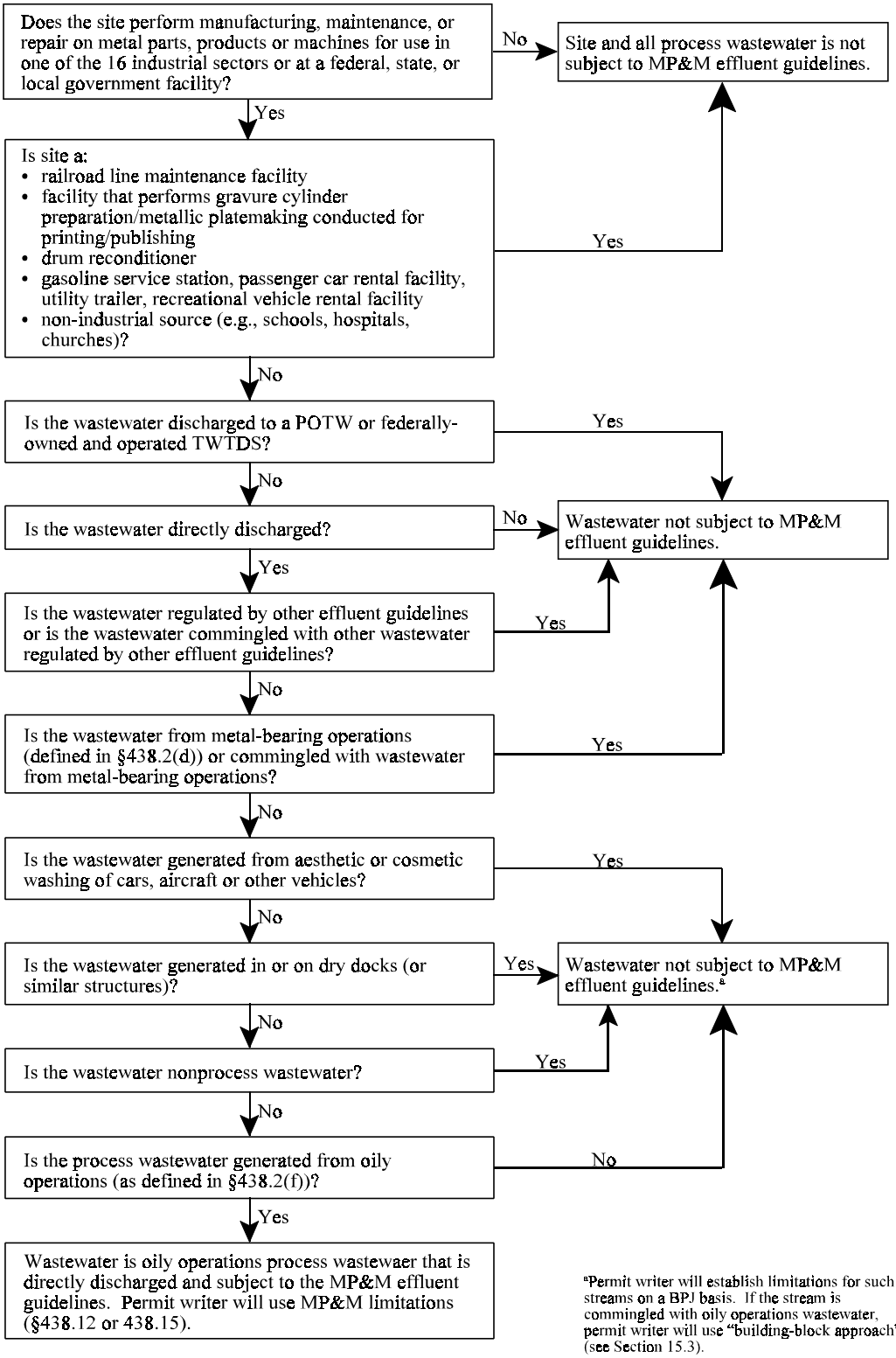

Figure 15-1. MP&M Permitting Process Flow Chart

Table 15-2

Effluent Limitations Guidelines for the MP&M Point Source Category (40 CFR 438)

BPT/BCT/NSPS - Oily Wastes Subcategory	
Regulated Parameter	**Maximum Daily mg/L (ppm)**
Total Suspended Solids (TSS)	62
Oil and Grease (as HEM)	46
pH	a

[a]Discharges must remain within the pH range 6 to 9.

When oily operations are commingled prior to treatment or discharged with nonprocess (e.g., noncontact cooling water) or nonregulated wastewater (e.g., wastewater from aesthetic cleaning of vehicles), the permit writer will establish nonregulated limitations for such streams on a BPJ basis. The permit writer will establish limitations for the combined stream using the "building-block" approach, using a flow-weighted combination of the applicable guideline limitations (found in Table 15-2) and the BPJ limitation for the nonprocess wastewater or nonregulated waste stream. For further information, see EPA NPDES Permit Writers Manual, Chapter 5, pp. 61-63 (1).

Although EPA is not promulgating mass-based limitations in the final MP&M rule, permit writers may want to develop mass-based limitations, if appropriate (e.g., a facility does not have adequate water conservation practices). The National Pollutant Discharge Elimination System (NPDES) regulations at 40 CFR 122.45(f) require permit writers to develop mass-based limitations for direct dischargers except in cases where the limitations are expressed in other units of measurement (e.g., a concentration).

For MP&M facilities that have good water conservation practices, concentration-based rather than mass-based effluent limitations may be sufficient. However, the Agency anticipates that MP&M facilities that have been using the best pollution prevention and water conservation practices may request that the permit writer establish mass-based limits in their permit.

Since MP&M effluent guidelines are concentration-based limitations and standards, NPDES permit writers will include these limitations and standards in NPDES permits for MP&M facilities. NPDES permit writers may also establish mass-based limits in addition to the MP&M concentration-based limitations and standards for MP&M facilities (see 122.45(f)(2)). In such cases, the NPDES permit will require the permittee to comply with both mass-based and concentration-based limits.

Because EPA did not promulgate mass-based limitations and because it did not codify the method to determine the flow rate in these cases, the permit writer may use methods other than historical flow and production data to calculate mass-based limitations. EPA has published several documents that provide guidance for determining the appropriate process wastewater flow rate and establishing mass-based limitations (1, 2, 3).

EPA based the final concentration-based MP&M effluent limitations on the performance of in-process pollution prevention and flow-reduction technologies followed by end-of-pipe treatment. In-process technologies include: conductivity meters, flow restrictors, and countercurrent cascade rinsing for flowing rinses; at-the-source machine coolant recycling; and at-the-source paint curtain recycling. The end-of-pipe treatment for the Oily Wastes Subcategory is chemical emulsion breaking and oil/water separation (see Sections 8.0 and 9.0). EPA is promulgating performance-based limitations and standards to control direct discharges; these limitations and standards do not require the use of any particular pollution prevention or wastewater treatment technology. Rather, a facility may use any combination of pollution prevention and wastewater treatment technology to comply with the limitations. Direct dischargers must also comply with other applicable regulations (e.g., NPDES regulations (40 CFR 122)).

The MP&M effluent guidelines also do not apply to process wastewaters from oily operations commingled with process wastewaters already subject to other effluent limitations guidelines or with process wastewaters from metal-bearing operations. When a facility segregates oily operation process wastewaters from other process wastewaters, the NPDES permit writer will apply the MP&M limitations and standards for those oily operation process wastewaters (at that outfall) and apply the applicable limitations and standards for their other discharges (at the other outfall(s)). For additional guidance regarding limits development, see EPA's NPDES Permit Writers' Manual (1).

15.4 Compliance Monitoring

Permit writers must establish requirements for regulated facilities to monitor their effluent to ensure that they are complying with permit limitations. As specified in 40 CFR 122.41, 122.44, and 122.48, all NPDES permits must specify requirements for using, maintaining, and installing (if appropriate) monitoring equipment; monitoring type, intervals, and frequencies that will provide representative data; analytical methods; and reporting and recordkeeping. The NPDES program requires permittees (with certain specific exceptions) to monitor for limited pollutants and report data at least once per year.

The Agency has not promulgated specific monitoring requirements or monitoring frequencies in the MP&M regulation; therefore, permit authorities may establish monitoring requirements and monitoring frequencies at their discretion. The Agency notes, however, that in developing the Part 438 limitations, EPA considered a monthly sampling frequency. In addition, Part 136 requires facilities to collect grab samples for oil and grease. In developing the Part 438 oil and grease limitations, EPA generally collected four grab samples in a 24-hour monitoring

day. The sample types for pH can range from a one-time grab sample during a monitoring day to continuous sampling for a monitoring day where pH is a critical aspect of the wastewater treated or the wastewater treatment operation.

15.5 References

1. U.S. Environmental Protection Agency. NPDES Permit Writers' Manual. EPA-833-B-96-003, December 1996.

2. U.S. Environmental Protection Agency. Guidance Manual For the Use of Production-Based Pretreatment Standards and the Combined Wastestream Formula. EPA-833-B-85-201, September 1985.

3. U.S. Environmental Protection Agency. Guidance Manual for Electroplating and Metal Finishing Pretreatment Standards. EPA-440/1-84-091g, February 1984.

16.0 GLOSSARY OF TERMS

This glossary includes a collection of the terms used in this document and an explanation of each term. To the extent that definitions and explanations provided in this glossary differ from those in EPA regulations or other official documents, they are intended for use in understanding this manual only.

Act - The Clean Water Act.

Administrator - The Administrator of the U.S. Environmental Protection Agency.

Agency - U.S. Environmental Protection Agency (also referred to as "EPA").

Ambient Water Quality Criteria (AWQC) - Water quality criteria set ambient levels of individual pollutants or parameters, or describe conditions of a water body that, if met, will generally protect the designated use of the water. Water quality criteria are developed to protect aquatic life and human health, and, in some cases, wildlife from the deleterious effects of pollutants.

AMSA - Association of Metropolitan Sewerage Agencies

Best Available Technology Economically Achievable (BAT) - Technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory. Best available technology economically achievable is defined by Section 304(b)(2)(B) of the Clean Water Act.

Best Conventional Pollutant Control Technology (BCT) - Technology based standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, oil and grease. The BCT is established in light of a two-part "cost reasonableness" test which compares the cost for an industry to reduce its pollutant discharge with the cost to a POTW for similar levels of reduction of a pollutant loading. The second test examines the cost-effectiveness of additional industrial treatment beyond BPT. EPA must find limits which are reasonable under both tests before establishing them as BCT.

Best Management Practices (BMP) - Sections 304(e), 308(a), 402(a), and 501(a) of the CWA authorize the Administrator to prescribe BMPs as part of effluent limitations guidelines and standards or as part of a permit.

Best Practicable Control Technology Currently Available (BPT) - The first level of technology-based standards established by the CWA to control pollutants discharged to waters of the U.S. BPT effluent limitations guidelines are generally based on the average of the best existing performance by plants within an industrial category or subcategory.

Best Professional Judgment (BPJ) - Best professional judgement. The method used by permit writers to develop technology-based NPDES permit conditions on a case-by-case basis using all reasonably available and relevant data.

Biochemical Oxygen Demand (BOD) - A measurement of the amount of oxygen utilized by the decomposition of organic material, over a specified time period (usually 5 days) in a wastewater sample; it is used as a measurement of the readily decomposable organic content of a wastewater (see Appendix B).

Categorical Industrial User (CIU) - An industrial user subject to National categorical pretreatment standards.

Categorical Pretreatment Standards - Limitations on pollutant discharges to publicly owned treatment works promulgated by EPA in accordance with Section 307 of the Clean Water Act that apply to specified process wastewaters of particular industrial categories.

Chemical Oxygen Demand (COD) - A measure of the oxygen-consuming capacity of inorganic and organic matter present in wastewater. COD is expressed as the amount of oxygen consumed in mg/l. Results do not necessarily correlate to the biochemical oxygen demand (BOD) because the chemical oxidant may react with substances that bacteria do not stabilize (see Appendix B).

Clean Air Act (CAA) - Clean Air Act (42 U.S.C. 7401 *et seq.*, as amended).

Clean Water Act (CWA) - 33 U.S.C. 1251 *et seq.*, as amended.

Code of Federal Regulations (CFR) - These regulations are published by the U.S. Government Printing Office. A codification of the general and permanent rules published in the *Federal Register* by the executive departments and agencies of the federal government. Title 40 of the CFR contains the environmental regulations.

Composite Sample - Sample composed of two or more discrete samples. The aggregate sample will reflect the average water quality covering the compositing or sample period.

Confidential Business Information (CBI) - Section 308 of the CWA authorizes EPA to collect information, including confidential business information, in support of developing effluent guidelines. When requested to do so, EPA is required to consider information to be confidential and to treat it accordingly if disclosure would divulge methods or processes entitled to protection as trade secrets.

Contract Hauling - The removal of any waste stream from a site by a company authorized to transport and dispose of the waste, excluding discharges to sewers or surface waters.

Control Authority - The term "control authority" as used in Section 403.12 refers to: (1) the POTW if the POTW's submission for its pretreatment program (§403.3(t)(1)) has been approved in accordance with the requirements of §403.11; or (2) the approval authority if the submission has not been approved.

Conventional Pollutants - Pollutants typical of municipal sewage, and for which municipal secondary treatment plants are typically designed; defined by Federal Regulation (40 CFR §401.16) as BOD, TSS, fecal coliform bacteria, oil and grease, and pH.

Corrosion preventive coating - The application of removable oily or organic solutions to protect metal surfaces against corrosive environments. Corrosion preventive coatings include, but are not limited to: petrolatum compounds, oils, hard dry-film compounds, solvent-cutback petroleum-based compounds, emulsions, water-displacing polar compounds, and fingerprint removers and neutralizers. Corrosion preventive coating does not include electroplating, or chemical conversion coating operations.

Cost-effectiveness (CE) - A ratio of compliance costs (in 1981$) to the toxic pounds of pollutants removed in terms of pound-equivalents (PE).

Daily Discharge - The discharge of a pollutant measured during any 24- hour period that reasonably represents a calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged during the day. For pollutants with limitations expressed in other units of measurement (e.g., concentration) the daily discharge is calculated as the average measurement of the pollutant throughout the day (see 40 CFR §122.2).

Direct Capital Costs - One-time capital costs associated with the purchase, installation, and delivery of a specific technology. The MP&M cost model estimates direct capital costs.

Direct Discharger - An industrial discharger that introduces wastewater to a water of the United States with or without treatment by the discharger.

Director - The Regional Administrator or State Director, as the context requires, or an authorized representative. When there is no approved State program, and there is an EPA administered program, Director means the Regional Administrator. When there is an approved State program, "Director" normally means the State Director.

Discharge Monitoring Report (DMR) - The form used to report self-monitoring results by NPDES permittees. DMRs must be used by approved States as well as by EPA.

Dissolved air flotation (DAF) - A wastewater treatment technology (see Section 8.0).

Economic, Environmental, and Benefits Analysis of the Final Metal Products & Machinery Rule (EEBA) - This document (EPA-821-B-03-002) presents the methodology employed to assess economic impacts and environmental impacts and benefits of the final rule and the results of the analysis.

Effluent Limitation - Any restriction imposed by the Director on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the United States, the waters of the contiguous zone, or the ocean.

Effluent Limitations Guidelines (ELG) - A regulation published by the Administrator under Section 304(b) of CWA that establishes national technology-based effluent requirements for a specific industrial category.

Emission - Passage of air pollutants into the atmosphere via a gas stream or other means.

End-of-Pipe Treatment (EOP) - Refers to those processes that treat a facility waste stream for pollutant removal prior to discharge.

EPA - The U.S. Environmental Protection Agency (also referred to as "the Agency").

Existing source - For this rule, any facility from which there is or may be a discharge of pollutants, the construction of which is commenced before the publication of the MP&M final final regulations.

Facility - A place of business that manufactures, rebuilds, or maintains metal parts, products, or machines (also referred to as "site"). See Section 1.0 for the applicability of the MP&M final rule. The facility includes all contiguous and noncontiguous property with established boundaries owned, operated, leased, or under control of the business entity. The property may be divided by public or private right-of-way.

Federal Register (FR) - This document is published by the U.S. Government Printing Office. A publication making available to the public regulations and legal notices issued by federal agencies.

Federally Owned Treatment Works (FOTW) - Any device or system owned and/or operated by a U.S. federal agency to recycle, reclaim, or treat liquid sewage or liquid industrial wastes.

Full Time Equivalents (FTE) - This is related to the number of employees at a given facility.

Fundamentally Different Factors (FDF) - Those components of a petitioner's facility that are determined to be so unlike those components considered by EPA during development of the MP&M final rule that the facility is worthy of a variance (see Section XI.C.1 of the preamble to the final rule).

General Metals (GM) Subcategory - As discussed in Section 9.0, EPA proposed, but did not promulgate, a separate subcategory for these facilities.

Grab Sample - A sample which is taken from a wastestream on a one-time basis without consideration of the flow rate of the wastestream and without consideration of time.

Hazardous Air Pollutant (HAP) - Substances listed by EPA as air toxics under Section 112 of the Clean Air Act.

Hazardous Waste - Any material that meets the Resource Conservation and Recovery Act definition of "hazardous waste" contained in 40 CFR 261.

Hexane Extractable Material (HEM) - A method-defined parameter that measures the presence of relatively nonvolatile hydrocarbons, vegetable oils, animal fats, waxes, soaps, greases, and related material that are extractable in the solvent n-hexane (see Appendix B).

Indirect Capital Costs - One-time capital costs that are not technology-specific and are represented as a multiplication factor that is applied to the direct capital costs estimated in the MP&M cost model.

Indirect Discharge - The introduction of pollutants into a municipal sewage treatment system from any nondomestic source (i.e., any industrial or commercial facility) regulated under Section 307(b), (c), or (d) of the CWA.

Influent - Wastewater entering a facility wastewater treatment unit.

Information Collection Request (ICR) - The Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*) stipulates that every federal agency, including EPA, must obtain approval from the Office of Management and Budget before collecting the same or similar information from 10 or more members of the public.

Local Limits - Conditional discharge limits imposed by municipalities upon industrial or commercial facilities that discharge to the municipal sewage treatment system.

Long-term average (LTA) - For purposes of the pretreatment standards, average pollutant levels achieved over a period of time by a facility, subcategory, or technology option.

Maximum Achievable Control Technology (MACT) - Air pollution control applicable to hazardous air pollutants (HAPs) - see NESHAPS.

Maximum daily discharge limitation - Definitions provided at 40 CFR 122.2 state that the "maximum daily discharge limitation" is the "highest allowable ‘daily discharge.' " Daily discharge is defined as the "‘discharge of a pollutant' measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling." Section 10.0 describes the data selection and calculations used to develop the final rule limitations.

Metal-bearing operations - One or more of the operations listed in 40 CFR 438.2(d). See also Section 1.0.

Metal Finishing Job Shops (MFJS) Subcategory - As discussed in Section 9.0, EPA proposed, but did not promulgate, a separate subcategory for these facilities.

Metal Products and Machinery (MP&M) - A regulation published by the Administrator under Section 304(b) of CWA that establishes national technology-based effluent requirements for the Metal Products and Machinery Point Source Category.

Million gallons per year (MGY) - Unit of effluent discharge.

Minimum Level - The lowest concentration that can be reliably measured by an analytical method.

Mixed-Use Facility - Any municipal, private, U.S. military or federal facility that contains both industrial and commercial/administrative buildings at which one or more industrial sites conduct operations within the facility’s boundaries.

National Emissions Standards for Hazardous Air Pollutants (NESHAPS) - Emissions standards set by EPA for an air pollutant that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness.

National Pollutant Discharge Elimination System (NPDES) - The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of CWA.

New Source - As defined in 40 CFR 122.2 and 122.29, and 403.3(k), a new source is any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced for purposes of compliance with New Source Performance Standards and Pretreatment Standards for New Sources after the promulgation of the final rule under Clean Water Act Sections 306 and 307(c).

New Source Performance Standards (NSPS) - Technology-based standards for facilities that qualify as new sources under 40 CFR §122.2 and 40 CFR §122.29. Standards consider that the new source facility has an opportunity to design operations to more effectively control pollutant discharges.

Non-Chromium Anodizing (NCA) Subcategory - As discussed in Section 9.0, EPA proposed, but did not promulgate, a separate subcategory for these facilities.

Noncontact Cooling Water - Water used for cooling that does not come into direct contact with any raw material, intermediate product, by-product, waste product, or finished product. This term is not intended to relate to air conditioning systems.

Nonconventional Pollutants - All pollutants that are not included in the list of conventional or toxic pollutants in 40 CFR 401. Includes pollutants such as chemical oxygen demand (COD), total organic carbon (TOC), nitrogen, and phosphorus.

Nondetect Value - Samples below the level that can be reliable measured by an analytical method. This is also known, in statistical terms, as left-censored (i.e., value having an upper bound at the sample-specific detection limit and a lower bound at zero).

Nonprocess Wastewater - Sanitary wastewater, noncontact cooling water, water from laundering, and noncontact stormwater. Nonprocess wastewater for this part also includes wastewater discharges from nonindustrial sources such as residential housing, schools, churches, recreational parks, shopping centers as well as wastewater discharges from gas stations, utility plants, and hospitals (see 40 CFR 438.2(e).

Non-Water Quality Environmental Impact (NWQI) - Deleterious aspects of control and treatment technologies applicable to point source category wastes, including, but not limited to air pollution, noise, radiation, sludge and solid waste generation, and energy used.

North American Industry Classification System. (NAICS) - This system is a unique method for classifying business establishments. Adopted in 1997 to replace the old Standard Industrial Classification (SIC) system, it is the industry classification system used by the statistical agencies of the United States.

Notice of Data Availability (NODA) - This Federal Register notice was published in June 5, 2002 (67 FR 38752). See Section 2.0.

NRDC - Natural Resources Defense Council.

NRMRL - EPA's National Risk Management Research Laboratory (formerly RREL - EPA's Risk Reduction Engineering Laboratory).

NSCEP - EPA's National Service Center for Environmental Publications (http://www.epa.gov/ncepi).

OCPSF - Organic Chemicals, Plastics, and Synthetic Fibers Manufacturing Point Source Category (40 CFR 414).

Off Site - Outside the boundary of the facility.

Oily operations - One or or more of the operations listed in 40 CFR 438.2(f). See also Section 1.

Oily Wastes Subcategory (OWS) - A subcategory (Subpart A) of the Metal Products and Machinery Point Source Category (40 CFR 438).

OMB - U.S. Office of Management and Budget.

On Site - Within the boundary of the facility.

Operating and Maintenance (O&M) Costs - Costs related to operating and maintaining a treatment system, including the estimated costs for compliance wastewater monitoring of the effluent.

ORP - Oxidation-reduction potential.

PE - Pound-equivalents (units used to weight toxic pollutants).

pH - A measure of the hydrogen ion concentration of water or wastewater; expressed as the negative log of the hydrogen ion concentration in mg/l. A pH of 7 is neutral. A pH less than 7 is acidic, and a pH greater than 7 is basic.

Point Source - Any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fixture, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are or may be discharged.

Pollutant - Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Pollutant of Concern (POC) - EPA evaluated wastewater to determine the presence of priority, conventional, and nonconventional pollutant parameters. See Section 7.0 for the criteria EPA used to identify pollutants of concern (POCs) and regulated pollutants.

Pollution Prevention - The use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes. It includes practices that reduce the use of hazardous and nonhazardous materials, energy, water, or other resources, as well as those practices that protect natural resources through conservation or more efficient use. Pollution prevention consists of source reduction, in-process recycle and reuse, and water conservation practices.

Pollutant Prevention Act of 1990 (PPA) - 42 U.S.C. 13101 *et seq.*, Public Law 101-508, November 5, 1990.

Pretreatment - The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a publicly owned treatment works.

Pretreatment standards for existing sources (PSES) - PSES are designed to prevent the discharge of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of publicly-owned treatment works (POTWs), including sludge disposal methods at POTWs. Pretreatment standards for existing sources are technology-based and are analogous to BAT effluent limitations guidelines.

Pretreatment standards for New sources (PSNS) - Like PSES, PSNS are designed to prevent the discharges of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of POTWs. PSNS are to be issued at the same time as NSPS. New indirect dischargers have the opportunity to incorporate into their plants the best available demonstrated technologies. The Agency considers the same factors in promulgating PSNS as it considers in promulgating NSPS.

Printed Wiring Board (PWB) Subcategory - As discussed in Section 9.0, EPA proposed, but did not promulgate, a separate subcategory for these facilities.

Priority Pollutants - The 126 pollutants listed in 40 CFR 423, Appendix A.

Privately Owned Treatment Works (PrOTW) - Any device or system owned and operated by a private company that is used to recycle, reclaim, or treat liquid industrial wastes not generated by that company.

Process Wastewater - Wastewater as defined at 40 CFR 122 and 401, and includes wastewater from noncontact, nondestructive testing (e.g., photographic wastewater from nondestructive X-ray examination of parts) performed at facilities subject to this part and includes wastewater from air pollution control devices (see 40 CFR 438.2).

Production-Normalized Flow (PNF) - Volume of wastewater generated per unit of production.

Publicly Owned Treatment Works (POTW) - A treatment works, as defined by Section 212 of the CWA, that is owned by the State or municipality. This definition includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW treatment plant.

Railroad Line Maintenance (RRLM) Subcategory - As discussed in Section 9.0, EPA proposed, but did not promulgate, a separate subcategory for these facilities.

Resource Conservation and Recovery Act of 1976 (RCRA) - This law (42 U.S.C. Section 6901 *et seq.*) regulates the generation, treatment, storage, disposal, or recycling of solid and hazardous wastes.

SBA - U.S. Small Business Administration.

Self-Monitoring - Sampling and analyses performed by a facility to determine compliance with a permit or other regulatory requirements.

Semivolatile Organic Compound (SVOC) - A measure of semivolatile organic constituents performed by isotope dilution gas chromatography/mass spectrometry (GC/MS), EPA Method 1625.

SGP - EPA's National Metal Finishing Strategic Goals Program.

Shipbuilding Dry Dock (SDD) Subcategory - As discussed in Section 9.0, EPA proposed, but did not promulgate, a separate subcategory for these facilities.

SIC - Standard Industrial Classification, a numerical categorization scheme used by the U.S. Department of Commerce to catalog economic activity according to product type.

Significant Industrial User (SIU) - An indirect discharger that is the focus of control efforts under the national pretreatment program; includes all indirect dischargers subject to national categorical pretreatment standards, and all other indirect dischargers that contribute 25,000 gpd or more of process wastewater, or which make up five percent or more of the hydraulic or organic loading to the municipal treatment plant, subject to certain exceptions.

Silica Gel Treated Hexane Extractable Material (SGT-HEM) - A method-defined parameter that measures the presence of mineral oils that are extractable in the solvent n-hexane and not absorbed by silica gel (see Appendix B).

Site - See "Facility.**"**

Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA) - Public Law 104-121, March 29, 1996.

Source Reduction - Any practice that reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise being released into the environment prior to recycling, treatment, or disposal. Source reduction can include equipment or technology modifications, process or procedure modifications, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

Steel Forming and Finishing (SFF) Subcategory - As discussed in Section 9.0, EPA proposed, but did not promulgate, a separate subcategory for these facilities.

Stormwater - Stormwater runoff, snow melt runoff, and surface runoff and drainage (see 40 CFR §122.26(b)(13)).

Surface Water - Waters of the United States, as defined at 40 CFR 122.2.

Technical Development Document (TDD) - Development Document for the Final Effluent Limitations Guidelines and Standards for the Metal Products & Machinery Point Source Category (EPA-821-B-03-001).

Technology in Place (TIP) - Refers to those technologies that the Agency considered to be installed and operating at a model site.

Technology-Based Effluent Limit - A permit limit for a pollutant that is based on the capability of a treatment method to reduce the pollutant to a certain concentration.

Total Annualized Cost (TAC) - Cost calculated from the capital and annual costs assuming a 7-percent discount rate over an estimated 15-year equipment life.

Total Capital Investment (TCI) - Total one-time capital costs required to build a treatment system (i.e., sum of direct and indirect capital costs).

Total Kjeldahl nitrogen (TKN) - Measure of reduced forms of nitrogen (see Appendix B).

Total Maximum Daily Load (TMDL) - The amount of pollutant, or property of a pollutant, from point, nonpoint, and natural background sources, that may be discharged to a water quality-limited receiving water. Any pollutant loading above the TMDL results in violation of applicable water quality standards.

Total Organic Carbon (TOC) - A nonconventional bulk parameter that measures the total organic content of wastewater (see Appendix B).

Total Organics Parameter (TOP) - Measure of toxic organics developed for the MP&M proposed rule. EPA developed a list of organic pollutants, called the Total Organics Parameter (TOP), using the list of organic priority pollutants and other nonconventional organic pollutants that met EPA's POCs criteria for the MP&M rule. Of the nonconventional organic chemicals on the MP&M POCs list, EPA included only those that were removed in appreciable quantities by the selected technology option (based on toxic weighted pound-equivalents) in two or more subcategories. The TOP list is comprised of all of the priority and nonconventional organic pollutants listed in Table 16-1.

Table 16-1

Priority and Nonconventional Organic Pollutants Comprising the Total Organics Parameter

Priority Organic Pollutants	
1,1,1-Trichloroethane	Di-n-Butyl Phthalate
1,1-Dichloroethane	Di-n-Octyl Phthalate
1,1-Dichloroethylene	Dimethyl Phthalate
2,4-Dimethylphenol	Ethylbenzene
2,4-Dinitrophenol	Fluoranthene
2,6-Dinitrotoluene	Fluorene
2-Nitrophenol	Isophorone
4-Chloro-m-cresol	Methylene Chloride
4-Nitrophenol	n-Nitrosodimethylamine
Acenaphthene	n-Nitrosodiphenylamine
Acrolein	Naphthalene
Anthracene	Phenanthrene
Benzyl Butyl Phthalate	Phenol
Bis(2-Ethylhexyl) Phthalate	Pyrene
Chlorobenzene	Tetrachloroethene
Chloroethane	Toluene
Chloroform	Trichloroethylene
1-Methylfluorene	Biphenyl
1-Methylphenanthrene	Carbon Disulfide
2-Isopropylnaphthalene	Dibenzofuran
2-Methylnaphthalene	Dibenzothiophene
Nonconventional Organic Pollutants	
3,6-Dimethylphenanthrene	n-Hexadecane
Aniline	n-Tetradecane
Benzoic Acid	p-Cymene

Total Petroleum Hydrocarbons (TPH) - A method-defined parameter that measures the presence of mineral oils that are extractable in Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane) and not absorbed by silica gel (see Appendix B).

Total Suspended Solids (TSS) - A measure of the filterable solids present in a sample, as determined by the method specified in 40 CFR 136. (see Appendix B).

Total Toxic Organics (TTO) - A parameter that is the summation of all quantifiable values greater than 0.01 milligrams per liter for the toxic organics (see 40 CFR 433.11(e)).

Toxic Release Inventory (TRI) - Database of toxic releases in the United States.

Toxic Substances Control Act (TSCA) - 15 U.S.C. 2601 *et seq*.

Toxic weighting factor (TWF) - A factor developed for various pollutants using a combination of toxicity data on human health and aquatic life and relative to the toxicity of copper. EPA uses toxic weighting factors in determining the amount of toxicity that a pollutant may exert on human health and aquatic life.

Treatment - Any method, technique, or process designed to change the physical, chemical, or biological character or composition of any metal-bearing, oily, or organic waste so as to neutralize such wastes, to render such wastes amenable to discharge, or to recover metal, oil, or organic content from the wastes.

Treatment Effectiveness Concentration - Treated effluent pollutant concentration that can be achieved by each treatment technology that is part of an MP&M regulatory option.

Treatment, Storage, and Disposal Facility (TSDF) - A facility that treats, stores, or disposes of hazardous waste in compliance with the applicable standards and permit requirements set forth in 40 CFR 264, 265, 266, and 270.

Treatment Works Treating Domestic Sewage (TWTDS) - Includes all POTWs and other facilities that treat domestic wastewater, and facilities that do not treat domestic wastewater, but that treat or dispose of sewage sludge.

Unit Operations - All processes performed on metal parts, products, or machines in their manufacture, maintenance, or rebuilding.

Upset - An exceptional incident in which there is unintentional and temporary noncompliance with the permit limit because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

U.S.C. - The United States Code.

Variability factor - Used in calculating a limitation (or standard) to allow for reasonable variation in pollutant concentrations when processed through extensively and well designed

Volatile Organic Compound (VOC) - A measure of volatile organic constituents performed by isotope dilution gas chromatography/mass spectrometry (GC/MS) (see Appendix B).

Wet Air Pollution or Odor Pollution Control System Scrubbers - Any equipment using water or water mixtures to control emissions of dust, odors, volatiles, sprays, or other pollutants.

Zero discharger - A facility that does not discharge pollutants to waters of the United States or to a POTW. Included in this definition are discharge or disposal of pollutants by way of evaporation, deep-well injection, off-site transfer to a treatment facility, and land application.